

Please type a plus sign (+) inside this box →

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

7

### Complete if Known

Application Number	10/617,321
Filing Date	07/10/2003
First Named Inventor	Choi et al.
Group Art Unit	2834
Examiner Name	Dougherty, Thomas M.

Attorney Docket Number PA88-30D09

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
B1	4,070,116			Frosch et al.	01-24-1978	
B2	4,600,309			Fay	07-15-1986	
B3	4,848,911			Uchida et al.	07-18-1989	
B4	5,074,667			Miyatake	12-24-1991	
B5	5,148,036			Matsugu et al.	09-15-1992	
B6	5,148,037			Suda et al.	09-15-1992	
B7	5,151,754			Ishibashi et al.	09-29-1992	
B8	5,179,863			Uchida et al.	01-19-1993	
B9	5,376,810			Hoenk et al.	12-27-1994	
B10	5,424,549			Feldman	06-13-1995	
B11	5,670,415			Rust	09-23-1997	
B12	5,743,998			Park	04-28-1998	
B13	5,855,686			Rust	01-05-1999	
B14	5,948,219			Rohner	09-07-1999	
B15	6,035,805			Rust	03-14-2000	
B16	6,150,680			Eastman et al.	11-21-2000	
B17	6,326,627	B1		Putvinski et al.	12-04-2001	
B18	2002/0132482	A1		Chou	09-19-2002	
B19	2002/0167117	A1		Chou	11-14-2002	
B20	6,482,742	B1		Chou	11-19-2002	
B21	6,534,418	B1		Plat et al.	03-18-2003	
B22	6,541,360	B1		Plat et al.	04-01-2003	
B23	2003/0081193	A1		White et al.	05-01-2003	
B24	2003/0080471	A1		Chou	05-01-2003	
B25	2004/0036201	A1		Chou et al.	02-26-2004	
B26	5,468,542			Crouch	11-21-1995	
B27	5,366,851			Novembre	11-22-1994	
B28	5,362,606			Hartney et al.	11-08-1994	
B29	5,324,683			Fitch et al.	06-28-1994	
B30	5,212,147			Sheats	05-18-1993	
B31	5,458,520			DeMercurio et al.	10-17-1995	
B32	5,453,157			Jeng	09-26-1995	
B33	5,439,766			Day et al.	08-08-1995	
B34	5,431,777			Austin et al.	07-11-1995	

Examiner Signature

*Thomas M. Dougherty*

Date Considered

2-3-05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Case allowed about 3 mos before

1449

Please type a plus sign (+) inside this box



PTO/SB/08A (08-00)

Approved for use through 10/31/2002, OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

2

of

7

**Complete if Known**

<b>Application Number</b>	10/617,321
<b>Filing Date</b>	07/10/2003
<b>First Named Inventor</b>	Choi et al.
<b>Group Art Unit</b>	2834
<b>Examiner Name</b>	Dougherty, Thomas M.
<b>Attorney Docket Number</b>	PA88-30D09

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	B35	5,422,295		Choi et al.	06-06-1995	
	B36	5,421,981		Leader et al.	06-06-1995	
	B37	5,417,802		Obeng	05-23-1995	
	B38	5,380,474		Rye et al.	01-10-1995	
	B39	5,374,454		Bickford et al.	12-20-1994	
	B40	5,330,881		Sidman et al.	07-19-1994	
	B41	5,328,810		Lowrey et al.	07-12-1994	
	B42	5,318,870		Hartney	06-07-1994	
	B43	5,244,818		Jokerst et al.	09-14-1993	
	B44	5,242,711		DeNatale et al.	09-07-1993	
	B45	5,240,878		Fitzsimmons et al.	08-31-1993	
	B46	5,108,875		Thackeray et al.	04-28-1992	
	B47	5,053,318		Gulla et al.	10-01-1991	
	B48	4,964,945		Calhoun	10-23-1990	
	B49	4,908,298		Hefferon et al.	03-13-1990	
	B50	4,921,778		Thackeray et al.	05-01-1990	
	B51	4,919,748		Bredbenner et al.	04-24-1990	
	B52	3,783,520		King	01-08-1974	
	B53	6,776,094	B1	Whitesides et al.	08-17-2004	
	B54	4,201,800		Alcom et al.	05-06-1980	
	B55	4,426,247		Tamamura et al.	01-17-1984	
	B56	4,507,331		Hiraoka	03-26-1985	
	B57	4,552,833		Ito et al.	11-12-1985	
	B58	4,657,845		Frechet et al.	04-14-1987	
	B59	4,692,205		Sachdev et al.	09-08-1987	
	B60	4,707,218		Giammarco et al.	11-17-1987	
	B61	4,737,425		Lin et al.	04-12-1988	
	B62	4,808,511		Holmes	02-28-1989	
	B63	4,826,943		Ito et al.	05-02-1989	
	B64	4,857,477		Kanamori	08-15-1989	
	B65	4,891,303		Garza et al.	01-02-1990	
	B66	4,931,351		McColgin et al.	06-05-1990	
	B67	4,976,818		Hashimoto et al.	12-11-1990	
	B68	4,980,316		Huebner	12-25-1990	
Examiner Signature	<i>Thomas M. Dougherty</i>			Date Considered	2-3-09	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

3

of

7

<b>Complete if Known</b>	
<b>Application Number</b>	10/617,321
<b>Filing Date</b>	07/10/2003
<b>First Named Inventor</b>	Choi et al.
<b>Group Art Unit</b>	2834
<b>Examiner Name</b>	Dougherty, Thomas M.
<b>Attorney Docket Number</b>	PA88-30D09

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	B69	4,999,280		Hiracka	03-12-1991	
	B70	5,071,694		Uekita et al.	12-10-1991	
	B71	5,169,494		Hashimoto et al.	12-08-1992	
	B72	5,173,393		Sezl et al.	12-22-1992	
	B73	5,198,326		Hashimoto et al.	03-30-1993	
	B74	5,234,793		Sebald et al.	08-10-1993	
	B75	5,314,772		Kozicki et al.	05-24-1994	
	B76	5,527,662		Hashimoto et al.	06-18-1996	
	B77	5,654,238		Cronin et al.	08-05-1997	
	B78	5,700,626		Lee et al.	12-23-1997	
	B79	5,736,424		Prybyla et al.	04-07-1998	
	B80	5,895,263		Carter et al.	04-20-1999	
	B81	5,907,782		Wu	05-25-1999	
	B82	5,926,690		Toprac et al.	07-20-1999	
	B83	5,948,570		Kornblit et al.	09-07-1999	
	B84	6,033,977		Gutsche et al.	03-07-2000	
	B85	6,096,655		Lee et al.	08-01-2000	
	B86	6,150,231		Muller et al.	11-21-2000	
	B87	6,245,581	B1	Bonser et al.	06-12-2001	
	B88	6,274,294	B1	Hines	08-14-2001	
	B89	6,329,256	B1	Ibok	12-11-2001	
	B90	6,383,928	B1	Eissa	05-07-2002	
	B91	6,387,783	B1	Furukawa et al.	05-14-2002	
	B92	6,388,253	B1	Su	05-14-2002	
	B93	6,391,798	B1	DeFelice et al.	05-21-2002	
	B94	6,455,411	B1	Jiang et al.	09-24-2002	
	B95	6,489,068	B1	Kye	12-03-2002	
	B96	6,514,672	B2	Young et al.	02-04-2003	
	B97	6,561,706	B2	Singh et al.	05-13-2003	
	B98	6,565,928	B2	Sakamoto et al.	05-20-2003	
	B99	2003/011368	A1	Mancini et al.	06-19-2003	
	B100	2003/0129542	A1	Shih et al.	07-10-2003	
	B101	6,632,742	B2	Yang et al.	10-14-2003	
	B102	6,635,581	B2	Wong	10-21-2003	

Examiner Signature

Date Considered

2-3-05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box

→

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

**U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
				<b>Application Number</b>	10/617,321
				<b>Filing Date</b>	07/10/2003
				<b>First Named Inventor</b>	Choi et al.
				<b>Group Art Unit</b>	2834
				<b>Examiner Name</b>	Dougherty, Thomas M.
(use as many sheets as necessary)				<b>Attorney Docket Number</b>	PA88-30D09
Sheet	4	of	7		

#### **U.S. PATENT DOCUMENTS**

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

**Burden Hour Statement:** This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box

→

PTO/SB/08A (08-00)

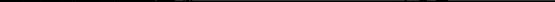
Approved for use through 10/31/2002. OMB 0651-0031

**U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449A/PTO				<b>Complete if Known</b>	
				<b>Application Number</b>	10/617,321
				<b>Filing Date</b>	07/10/2003
				<b>First Named Inventor</b>	Choi et al.
				<b>Group Art Unit</b>	2834
				<b>Examiner Name</b>	Dougherty, Thomas M.
(use as many sheets as necessary)				<b>Attorney Docket Number</b>	PA88-30D09
Sheet	5	of	7		

## **FOREIGN PATENT DOCUMENTS**

Examiner Signature		Date Considered	2-3-09
-----------------------	---	--------------------	--------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

**Burden Hour Statement:** This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box



PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

6

of

7

### Complete if Known

Application Number	10/617,321
Filing Date	07/10/2003
First Named Inventor	Choi et al.
Group Art Unit	2834
Examiner Name	Dougherty, Thomas M.
Attorney Docket Number	PA88-30D09

### OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	B119	Abstract of Japanese Patent 63-138730	
	B120	Abstract of Japanese Patent 55-88332	
	B121	Abstract of Japanese Patent 57-7931	
	B122	Abstract of Japanese Patent 02-92603.	
	B123	Translation of Japanese Patent 02-92603.	
	B124	Abstract of Japanese Patent 02-24848.	
	B125	Translation of Japanese Patent 02-24848.	
	B126	HEIDARI et al., "Nanoimprint Lithography at the 6 in. Wafer Scale," Journal of Vacuum Science Technology, Nov/Dec 2000, pp. 3557-3560, vol. B, no. 18(6)/	
	B127	NERAC.COM Retro Search, "Reduction of Dimension of Contact Holes", August 31, 2004	
	B128	NERAC.COM Retro Search, "Trim Etching of Features Formed on an Organic Layer", September 2, 2004	
	B129	NERAC.COM Retro Search, "Multi-Layer Resists", September 2, 2004	

Examiner Signature

Date Considered

2-3-05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

\*Please type a plus sign (+) inside this box →

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449B/PTO				<i>Complete if Known</i>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				Application Number	10/617,321
				Filing Date	07/10/2003
				First Named Inventor	Choi et al.
				Group Art Unit	2834
				Examiner Name	Dougherty, Thomas M.
Sheet	7	of	7	Attorney Docket Number	

#### **OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Signature	Thomas M. Douglas	Date Considered	2-3-08
-----------------------	-------------------	--------------------	--------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

**Burden Hour Statement:** This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231